

## **Appendix M: Land Protection Plan**

## Appendix M: Mark Twain NWR Complex Land Protection Plan

Situated along the Mississippi River corridor, the Mark Twain National Wildlife Refuge Complex is a mosaic of river, wetland, forest and grassland. The Complex, which is located along the Mississippi Flyway and includes five national wildlife refuges, provides habitat for a wide range of resident and migratory species, particularly migratory waterfowl.

The Complex began with establishment in 1958 of a single Refuge (acres) with three primary divisions. Land for the Refuge was originally purchased from the U.S. Army Corps of Engineers, and the Refuge's headquarters were located in Quincy, Illinois. District offices were located in Annada, Missouri; Brussels, Illinois; and Wapello, Iowa. In 1964, the Clarence Cannon National Wildlife Refuge was made part of the Mark Twain Refuge. Over time, additional lands were purchased and Refuge operations expanded. At the same time, the use of the name "Mark Twain" burgeoned in the area, resulting in serious confusion about what the Refuge is and where it is located. In 2000, the Director of the U.S. Fish & Wildlife Service approved a change in the Refuge's organizational structure. This structure created the Mark Twain NWR Complex, which has headquarters in Quincy, Illinois, and is comprised of five national wildlife refuges: Port Louisa NWR, Middle Mississippi NWR; Great River NWR; Two Rivers NWR; and Clarence Cannon NWR. The names of the refuges and the divisions within each Refuge are more recognizable to local residents and better differentiate the refuges from state wildlife areas and other facilities.

The most significant land acquisition effort to date stems from the Great Flood of 1993, which cost local landowners millions of dollars in levee damage and lost crops. In response, Congress funded the Complex for acquisition within four areas in the lower 200 miles of the Upper Mississippi River as part of a broader federal strategy to assist landowners of the historic floodplain and to restore some floodplain function. Public Law 103-75 (Emergency Supplemental Appropriations for Relief from Major, Widespread Flooding in the Midwest of 1993) provided funds for the Complex to purchase a portion of the 11,400 acres identified as part of a refuge boundary expansion approved following the 1993 flood.

### Project Description

During the process of developing the Comprehensive Conservation Plan for the Complex, an addition to the Complex of approximately 60,000 acres was evaluated. This area was later reduced to 55,673 acres due to the change in status of some of the lands making them no longer appropriate for additions. The remaining potential additions were ranked in priority order. Due to the realities of funding in the current economy and due to concerns regarding the growing operations and maintenance funding deficits, the decision was made to focus the boundary expansion only on those tracts listed under Priority 1 (Table 1). The comprehensive conservation plan proposes a total boundary expansion of 27,659 acres encompassing four of the five refuges that comprise the Mark Twain NWR Complex. There are approximately 10,724 acres (18% of the authorized boundaries) remaining to be acquired within the currently approved Complex boundaries.

Over 53% of the 27,659-acre expansion area includes land located in the Middle Mississippi River reach of the Upper Mississippi River. Very little public ownership exists there and floods have been particularly hard on floodplain farmers in that portion of the river.

#### Threat to or Status of Resource to be Protected

The lands and waters of the Mark Twain NWR Complex provide many of the core wildlife habitat areas along the lower half of the Upper Mississippi River System (UMRS). The UMRS includes the Upper Mississippi River and navigable tributaries, including the Illinois River but excluding the Missouri River. While the entire river corridor is important, particularly to the health and recruitment of aquatic species, habitat values change along each river mile. Development, agriculture, navigation and flood control measures have all negatively impacted Upper Mississippi River water quality. Sedimentation is the primary concern because it degrades wetlands throughout the System, diminishes the diversity of water depths, and over time can convert wetlands to terrestrial habitat. Suspended sediments also increase turbidity, resulting in a reduction of light penetration that may limit or eliminate aquatic plant growth and reduce primary production by phytoplankton. Nutrients, heavy metals and pesticides also degrade the quality of wetland habitats throughout the River.

This boundary expansion is proposed on a willing-seller-only basis, which means that acquisition would occur when landowners chose to sell. It would most likely take two or three decades for the Service to acquire all of the land it was authorized to purchase. It is important that the Complex be authorized to purchase land now so that the slow process of acquisition and restoration can begin before habitat degradation is irreversible.

#### Proposed Action and Objective

Over the course of the 15-year planning horizon, and in reality a good deal longer, the Service proposes to buy land within the 27,659-acre expansion boundary from willing sellers. The expansion boundary encompasses approximately 134 landowners on 31 separate areas.

Most of the lands would be managed for forest and aquatic habitats. The forests will provide a contiguous corridor for nesting and migrating birds and aquatic habitats will be managed for the benefit of big river fish. Expansions of the flood zone will contribute to the floodplain management and water quality goals. An exact prediction of the habitat types that will result in any area can not be made until the areas have been acquired and options can be explored on-site. However, it is estimated that locations of the expansion above St. Louis will result in habitat types that are proportioned close to the distribution that now occurs in those refuges. In general, this would break down to: forest types, 50 percent; wetland and aquatic types, 30 percent; and other terrestrial types, 20 percent. Since there will be an increased emphasis on connectivity rather than isolated wetlands in the Middle Mississippi River section, the proportions there are estimated to be 65 percent forest, 20 percent wetland, and 15 percent other terrestrial habitats.

## Protection Alternatives

Land protection options vary from written agreements on land management to outright purchase of the land. Land may be acquired in fee title by several methods including exchange, purchase or donation. Conservation or non development easements can also be purchased by the Service or donated by a landowner. Each parcel of land has unique resource values and circumstances that determine the desired level of protection.

Alternatives considered as part of this planning process include not pursuing a boundary expansion (no action), fee-title acquisition, acquisition of easements, and acquisition/management by others.

**No Action:** In the absence of the proposed acquisition, agricultural and flood control practices will continue to have a negative impact on the Upper Mississippi River. Agricultural land will continue to require significant investment in flood control.

**Acquisition and/or Management by Others:** There is little public ownership of land in the area of the proposed boundary expansion, including land owned by Departments of Natural Resources in affected states. The Service is already a presence in the communities of the individual Refuges and therefore is the most logical agency to acquire land.

**Fee Title or Less Than Fee Title:** Flood control is essential for landowners to have any benefit from the land, however the Service's intent is to create better connectivity with the River. These two needs are mutually exclusive, thus landowners would probably benefit more from outright sale of their land rather than retaining fee-title to land that would probably be more subject to flooding than it is right now.

After considering these alternatives, the Service is proposing to acquire land only those areas identified as Priority 1 tracts within the proposed boundary expansion on a fee-title basis. The Upper Mississippi River System is a vast watershed. Indeed, the area of ecological concern for the Mark Twain NWR Complex is 1.3 million acres in size. Conservation and habitat protection efforts within an area that big demand partnerships with individual land owners, non-governmental organizations, and state and federal agencies. We believe in the power of partnerships and we will seek opportunities to form partnerships within the area of ecological concern. The lands included in Priorities 2, 3, and 4 as well as other lands within the broader area of ecological concern will be protected through partnerships with other agencies, with the States, private organizations, and with private landowners, working through the Service's Partners for Fish and Wildlife Program and other existing programs. Those areas will not be acquired by the Service.

At the same time, we believe that expanding the Complex boundary through fee-title acquisition will benefit both the Service and private landowners. Very little public ownership exists throughout much of the area, and floods have been particularly hard on floodplain farmers in the portion of the River. The purchase of easements would have limited benefit for the landowner because flooding has severely limited the practical use of the land for farming. Purchase and management of land by the state or other government agencies is unlikely since there

are few areas of public ownership now, and the Service is the logical agency to manage habitat as part of existing national wildlife refuges. The no action alternative has been considered, but increasing sedimentation and the resulting habitat degradation certainly affect the existing refuges and have the potential for more serious effects. It is incumbent on the Service to pursue management strategies that will protect critical habitat for wildlife species.

### Acquisition Alternatives

The Service is proposing to use Land and Water Conservation Fund dollars for this boundary expansion project. In a few limited cases, land exchanges may also be used to facilitate the boundary expansion. Long term leases, donations, and easements may also be used to achieve the boundary expansion. It is also likely that the Service may be able to partner with the U.S. Department of Agriculture in joint acquisition of lands eligible for the Wetland Reserve Program. This could significantly lower acquisition costs for the Service. It is also possible, as was the case following the flood of 1993, that emergency flood funding may be available to assist landowners who wish to relocate from the floodplain. It is estimated that the 27,659 acres would cost between \$20 million and \$27 million.

### Coordination

Mark Twain NWR Complex has a long tradition of coordinating management activities with a variety of entities, particularly the U.S. Army Corps of Engineers. The COE has been briefed on the expansion proposal and has had input into the Service's planning process. The Service has also been coordinating this issue with the Ameren/Union Electric Power Corporation. The company has expressed an interest in working with the Complex after it completes research to identify and clear titles in their possession. Long-term leases to the Complex, or the sale of small, key parcels that enable an open water restoration project anchor point have been discussed as a possibility.

### Sociocultural Impacts

Acquisition is proposed on a willing-seller-only basis. This means that the Service is proposing to purchase land only from individuals who are selling land of their own volition. Eminent domain is not being proposed.

Given the increased occurrence of flooding, sale of land to the U.S. Fish and Wildlife Service would benefit local communities. The Service would be interested in purchasing land that has diminished value for agricultural purposes and, therefore, is less desirable to other buyers. The land is not being proposed as development, thus no change in life style or activities is likely.

**Table 1: Tracts Considered for Boundary Expansion, Acreages, and Priorities  
(Only Priority 1 tracts are proposed for the boundary expansion.)**

***Draft* Mark Twain NWR Complex Proposed Boundary Expansion (03/10/03) Sorted by Priority, Station & River**

ID #	Tract Name	Acres	Owners	State	County	River Mile	Refuge	Type Action	Priority
14	Fox Island East	108	2	Missouri	Clark	358	GRR	Acq or other protect	1
16B	Fox Island Central	31	1	Missouri	Clark	358	GRR	Acq or other protect	1
16	Fox Island South	110	1	Missouri	Clark	357	GRR	Acq or other protect	1
21	Dillon Island	530	1	Illinois	Adams	342	GRR	Acq or other protect	1
24	Salt River	2863	5	Missouri	Pike	285	GRR	Acq or other protect	1
25	Delair North	98	1	Illinois	Pike	281	GRR	Acq or other protect	1
26	Delair Center	564	1	Illinois	Pike	278	GRR	Acq or other protect	1
27	Goose Pasture	392	1	Missouri	Pike	263	GRR	Acq or other protect	1
31	Annada East	540	2	Missouri	Pike	261	GRR	Acq or other protect	1
32	Annada Corner	2	1	Missouri	Pike	261	GRR	Acq or other protect	1
48	Calico Island	3316	22	Illinois	Monroe	153	MMR	Acq or other protect	1
52	Schmidts Island	1615	1	Illinois	Randolph	132	MMR	Acq or other protect	1
53	Turkey Island	1403	5	Missouri	Ste Genevieve	130	MMR	Acq or other protect	1
54	Beaver Island	397	1	Illinois	Randolph	118	MMR	Acq or other protect	1
55	Horse Island	3361	9	Illinois	Randolph	112	MMR	Acq or other protect	1
57	Rockwood Island	2319	18	Illinois	Randolph	104	MMR	Acq or other protect	1
58	Jones Towhead	1878	11	Missouri	Perry	100	MMR	Acq or other protect	1
60	Hat Island	470	3	Illinois	Jackson	89	MMR	Acq or other protect	1
2	Louisa North	840	6	Iowa	Louisa	441	PTL	Acq or other protect	1
4	Levee District 11	3016	16	Iowa	Louisa	434	PTL	Acq or other protect	1
5	Horseshoe North I	38	2	Iowa	Louisa	434	PTL	Acq or other protect	1
6	Horseshoe North II	9	1	Iowa	Louisa	434	PTL	Acq or other protect	1
9	Railroad Levee	27	2	Illinois	Mercer	428	PTL	Acq or other protect	1
10	White House Lake	2591	5	Illinois	Henderson	414	PTL	Acq or other protect	1
13A	Pool 19 submerged lands	80	1	Iowa	Lee	377	PTL	Acq or lease	1
13B	Pool 19 submerged lands	80	1	Illinois	Hancock	374	PTL	Acq or lease	1
33	Batchtown North	498	8	Illinois	Calhoun	252	TWR	Acq or other protect	1
34	Batchtown South	173	5	Illinois	Calhoun	248	TWR	Acq or other protect	1
37	Gilbert Lake Addition	203	1	Illinois	Jersey	218	TWR	Acq or other protect	1
38	Gilbert Lake DNR Agreement	92	0	Illinois	Jersey	218	TWR	Trade From State	1
39	Calhoun North	27	1	Illinois	Calhoun	218	TWR	Acq or other protect	1
41	Calhoun Division within DNR	-9	0	Illinois	Calhoun	218	TWR	Trade To State	1
16A	Fox Island North	755	8	Missouri	Clark	358	GRR	Acq or other protect	2
17	Fox River North	19	1	Missouri	Clark	355	GRR	Acq or other protect	2
22	Long Island Addition	527	13	Illinois	Adams	342	GRR	Acq or other protect	2
24A	Salt River North	503	4	Missouri	Pike	285	GRR	Acq or other protect	2
26A	Delair South	440	2	Illinois	Pike	276	GRR	Acq or other protect	2
28	Slim Island	970	3	Missouri	Pike	267	GRR	Acq or other protect	2
31A	Annada West	83	1	Missouri	Pike	261	GRR	Acq or other protect	2
45	Jefferson Barracks North	1006	5	Illinois	Monroe	172	MMR	Acq or other protect	2
55A	Horse Island West	649	3	Illinois	Randolph	112	MMR	Acq or other protect	2
56	Crains Island	958	7	Illinois	Randolph	108	MMR	Acq or other protect	2
61	Schenimann	2602	9	Missouri	Cape Girardeau	64	MMR	Acq or other protect	2
1	Bay Island	2514	7	Illinois	Mercer	444	PTL	Acq or other protect	2
8	Edwards River	463	3	Illinois	Mercer	431	PTL	Acq or other protect	2
29	Pool 25 - I	721	6	Illinois	Calhoun	266	TWR	Acq or other protect	2
42A	Golden Eagle	750	15	Missouri	St. Charles	229	TWR	Acq or other protect	2
40	Calhoun South	710	6	Illinois	Calhoun	218	TWR	Acq or other protect	2
36	Apple Creek South	350	2	Illinois	Greene	218	TWR	Acq or other protect	2
43	Riverlands	62	1	Missouri	St. Charles	202	TWR	Acq or other protect	2
44	Riverlands II	2	1	Missouri	St. Charles	202	TWR	Acq or other protect	2
16C	Fox Island NW/NE	408	4	Missouri	Clark	358	GRR	Acq or other protect	3
15	Grey's Island	265	2	Missouri	Clark	358	GRR	Acq or other protect	3
19	Fox River South	21	1	Missouri	Clark	355	GRR	Acq or other protect	3

**Table 1: Tracts Considered for Boundary Expansion, Acreages, and Priorities (Continued)**  
**(Only Priority 1 tracts are proposed for the boundary expansion.)**

18 Fox River South (LD inhold)	-7	0	Missouri	Clark	355	GRR	Trade to Farmer (19)	3
20 Canton	103	2	Missouri	Lewis	343	GRR	Acq or other protect	3
27A Fox Creek	1780	7	Missouri	Pike	271	GRR	Acq or other protect	3
48A Calico Island South	177	3	Illinois	Monroe	144	MMR	Acq or other protect	3
49 Beagles Island	2562	25	Illinois	Monroe	143	MMR	Acq or other protect	3
50 Fort Chartres Island	396	2	Illinois	Randolph	136	MMR	Acq or other protect	3
60A Hat Island East	1078	9	Illinois	Jackson	88	MMR	Acq or other protect	3
3 Louisa South	15	2	Iowa	Louisa	440	PTL	Acq or other protect	3
7 Horseshoe East	333	3	Iowa	Louisa	434	PTL	Acq or other protect	3
42 Peruque & Two Branch Islands	748	3	Missouri	St. Charles	232	TWR	Acq or other protect	3
35 Apple Creek North	658	3	Illinois	Greene	218	TWR	Acq or other protect	3
23 West Quincy	2168	8	Missouri	Marion	320	GRR	Acq or other protect	4
46 Jefferson Barracks South	71	1	Illinois	Monroe	167	MMR	Acq or other protect	4
11 Skunk River	1985	4	Iowa	Des Moines	397	PTL	Acq or other protect	4
12 Ameren East Ft. Madison	837	1	Iowa	Lee	386	PTL	Acq or other protect	4
13 Ameren West Ft. Madison	332	1	Iowa	Lee	380	PTL	Acq or other protect	4
<b>TOTALS</b>	<b>55673</b>	<b>313</b>						

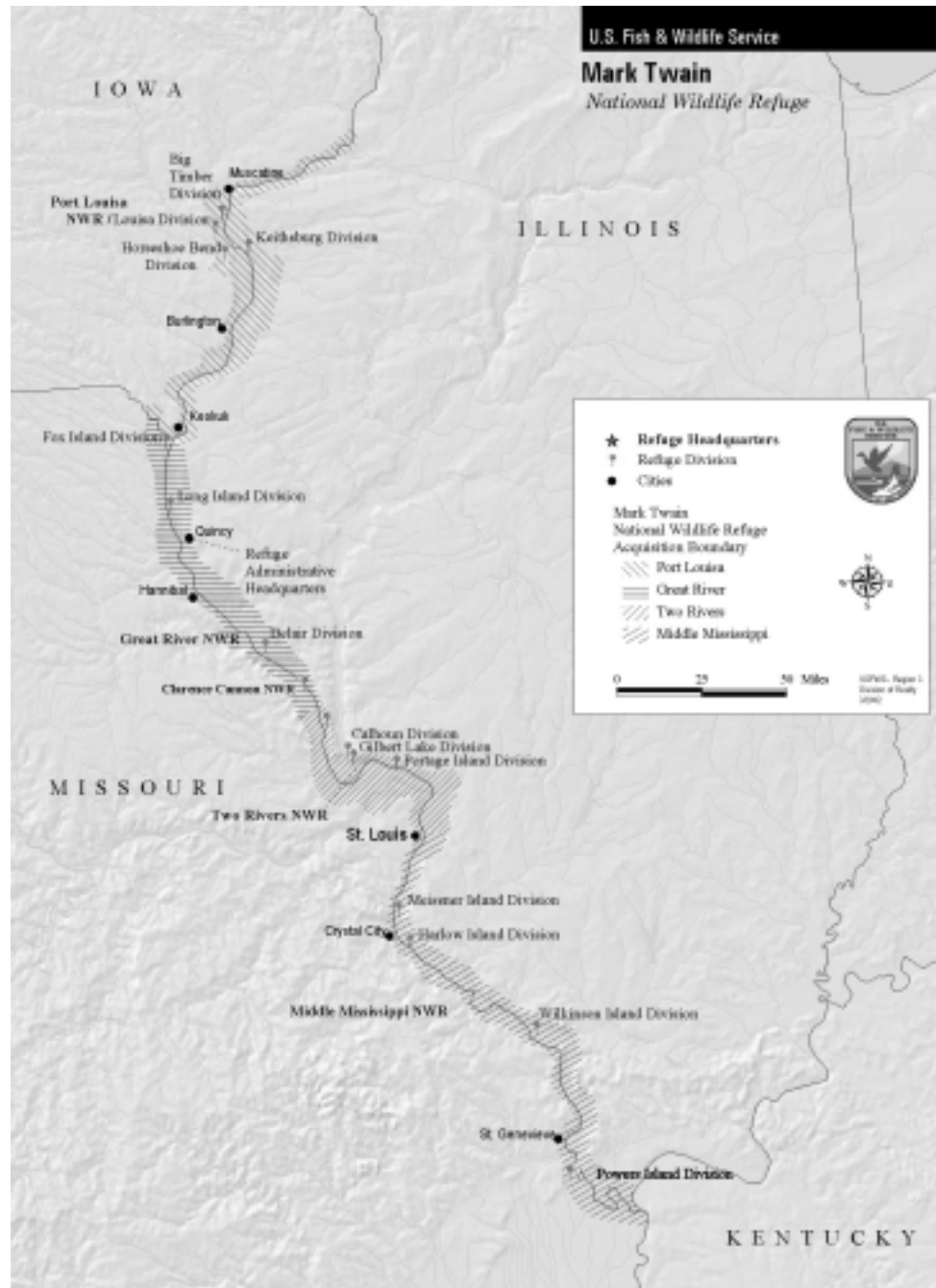
<b>Revised Total by Refug</b>		<b>Top Pri</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>
Port Louisa (PTL)	13159	6681	2977	348	3154
Great River (GRR)	13272	5237	3297	2570	2168
Two Rivers (TWR)	4985	983	2595	1406	0
Middle Miss River (MMR)	24258	14758	5215	4213	71
Adjusted Complex Totals	<b>55673</b>	<b>27659</b>	<b>14084</b>	<b>8537</b>	<b>5393</b>
<b>Owners</b>		135	97	66	15

**Lands not yet acquired or protected from 93' Flood expansion project (Middle Miss Re**

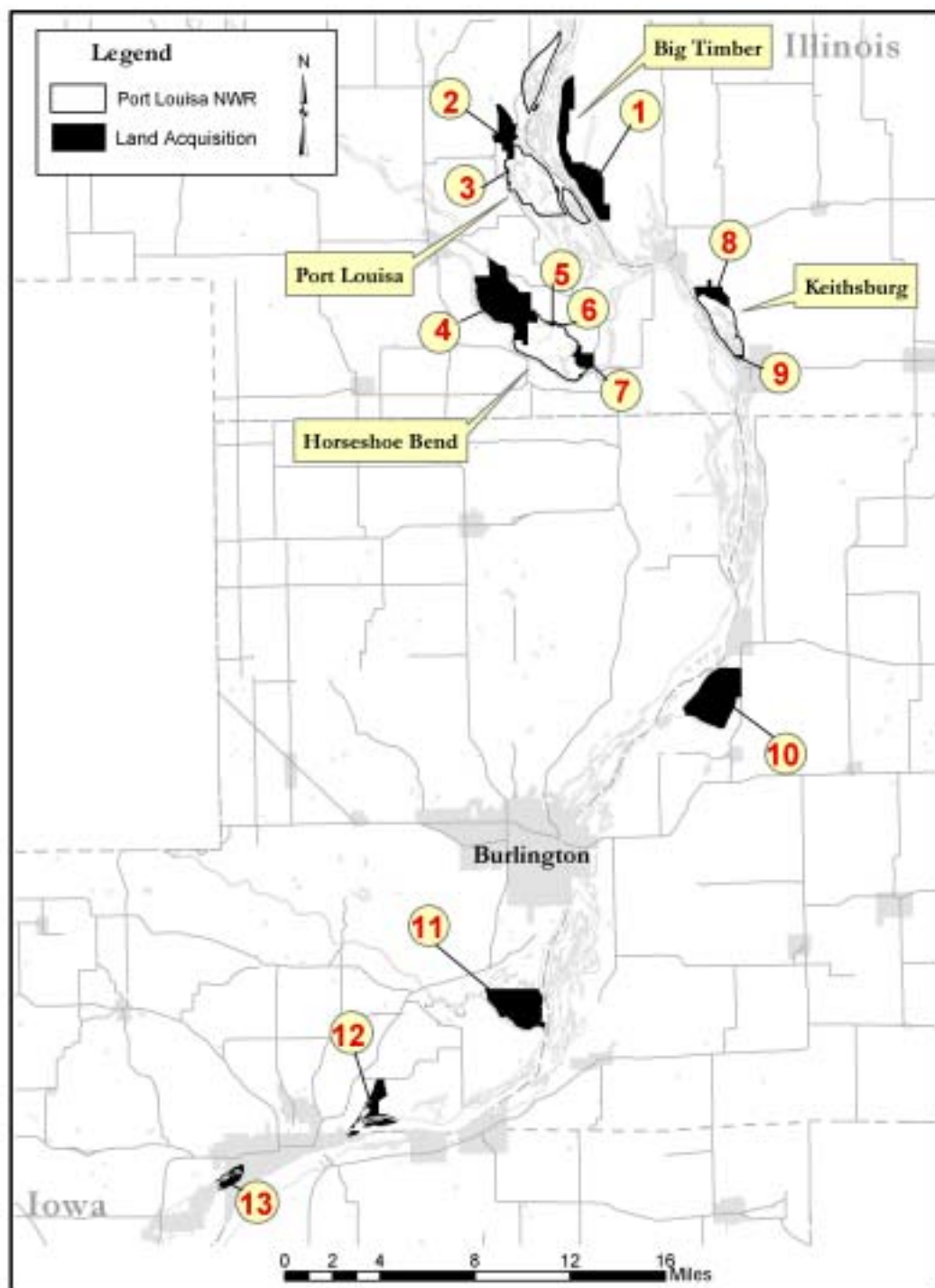
47 Meissner Island Addition	1581	Illinois	Monroe	156	MMR	Acq or other protect
51 Harlow Island Addition	243	Missouri	Jefferson	144	MMR	Acq or other protect
59 Wilkinson Island Addition	756	Missouri	Perry	92	MMR	Acq or other protect
63 Powers Island	5740	Missouri	Scott	39	MMR	Acq or other protect
<b>Total</b>	<b>8320</b>					

**Lands remaining to be acquired at Clarence Cannon NV**      2,404 acres

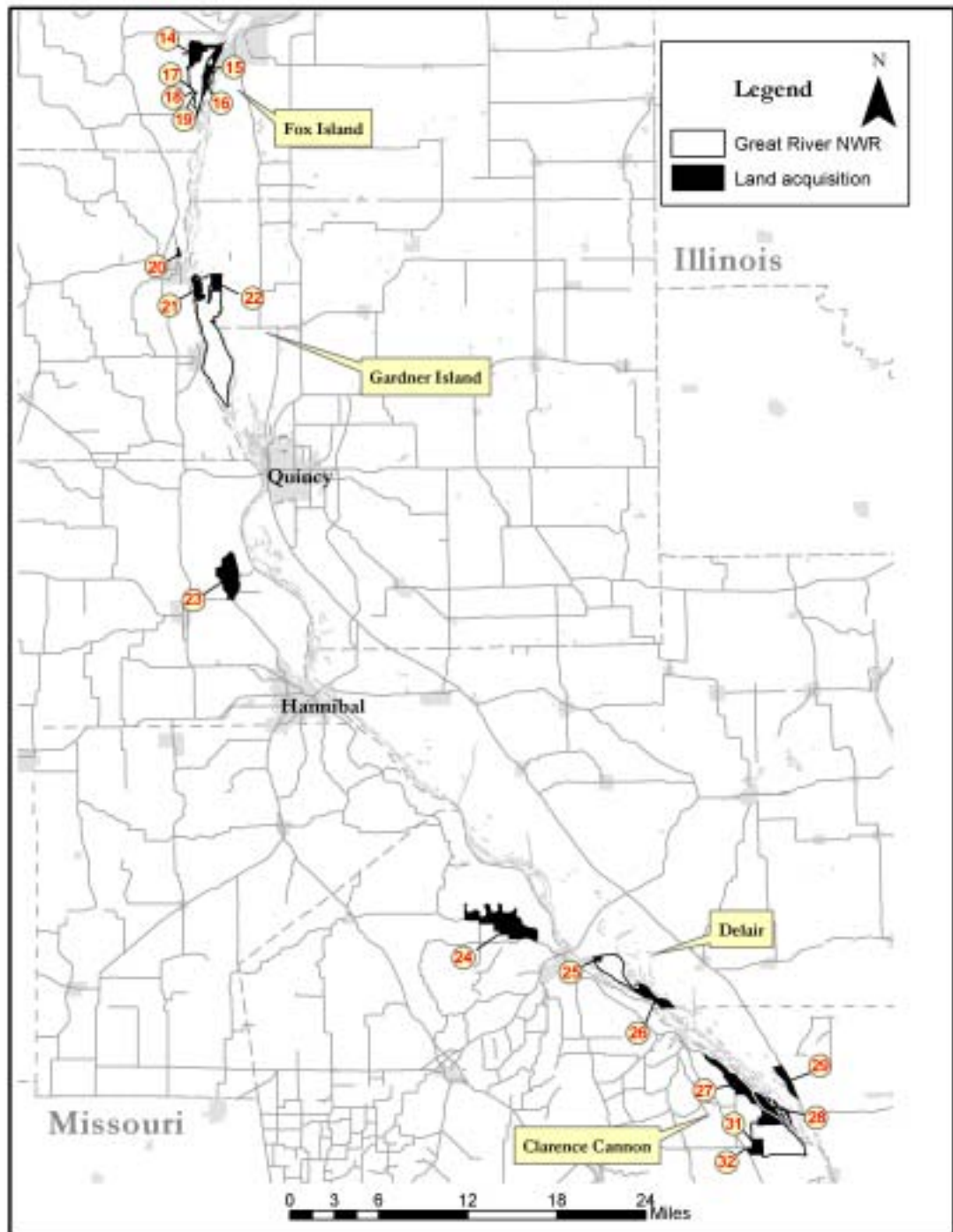
## Attachment 1. Maps of the Proposed Boundary Expansion Depicting Unit Numbers



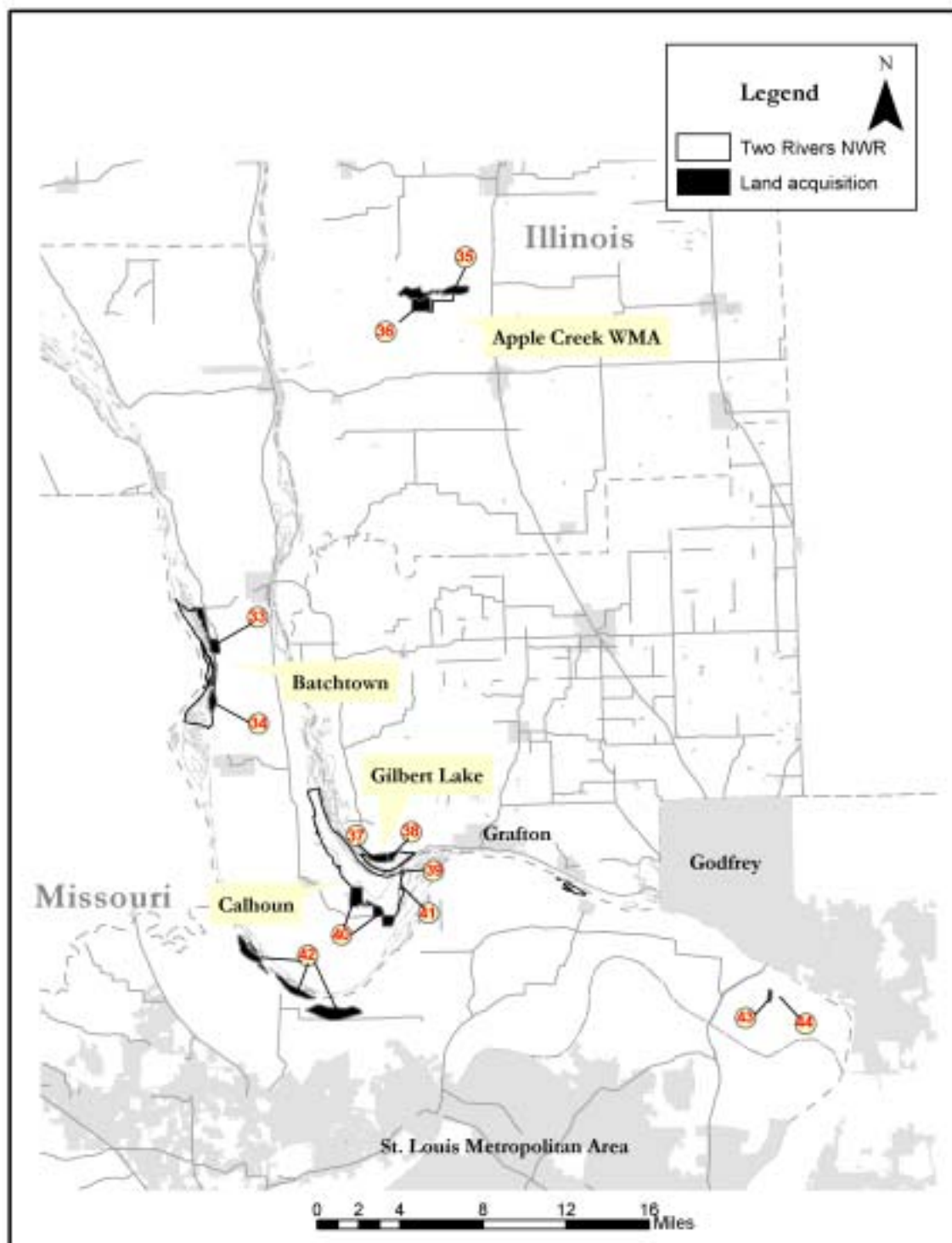




**Port Louisa National Wildlife Refuge**  
Land Acquisition Reference Map

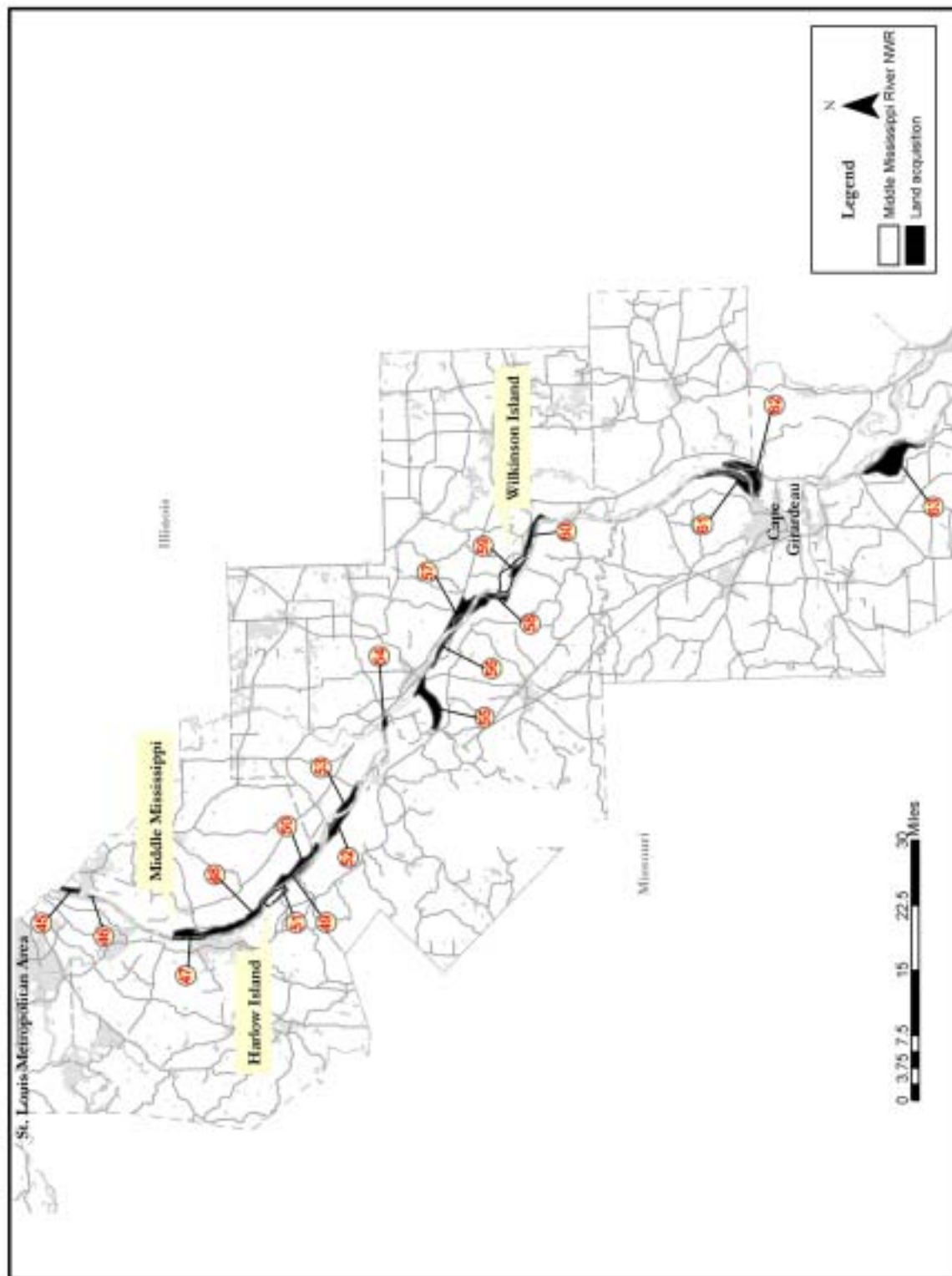


**Great River National Wildlife Refuge**  
Land Acquisition Reference Map



## Two Rivers National Wildlife Refuge

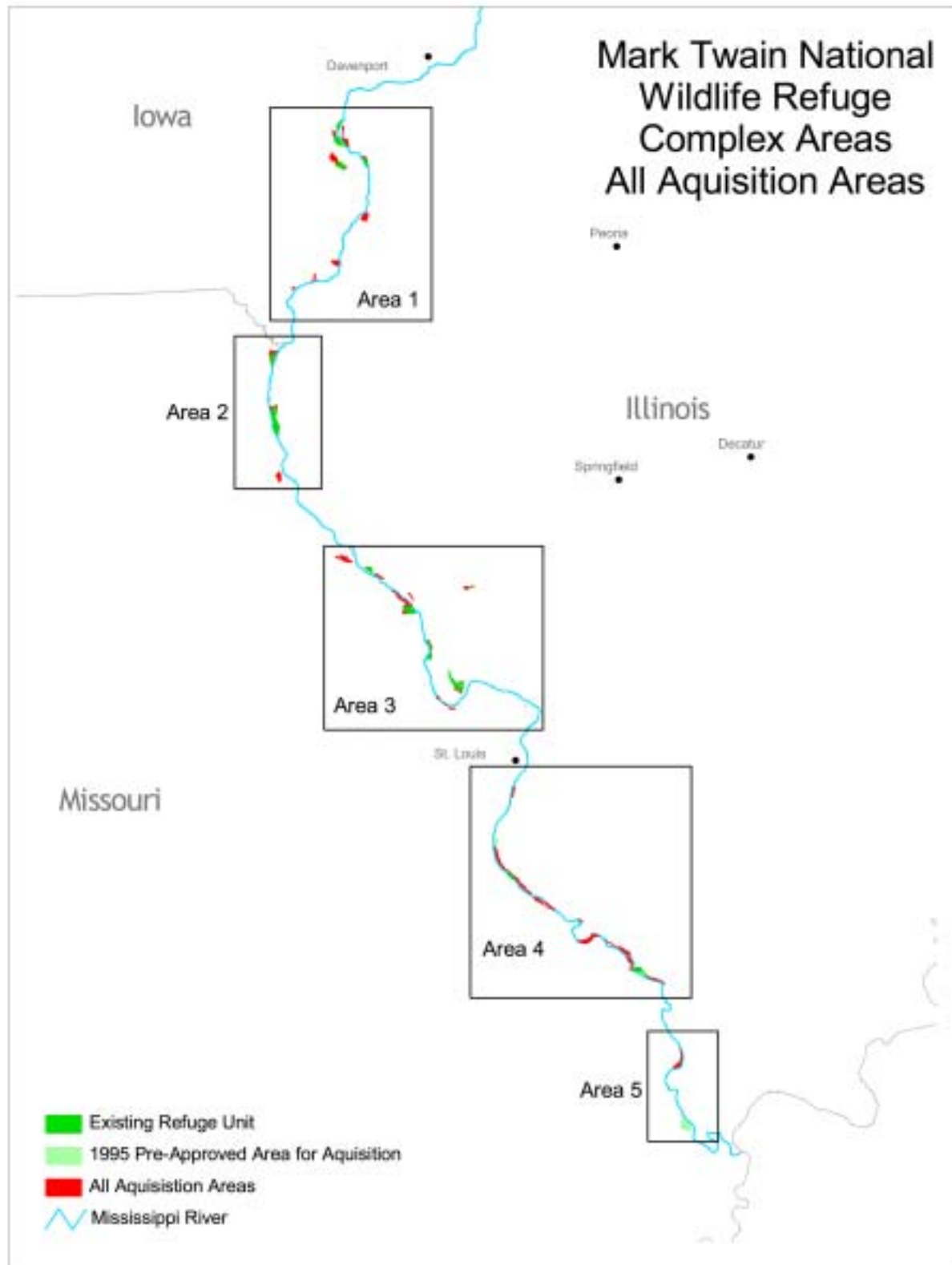
Land Acquisition Reference Map



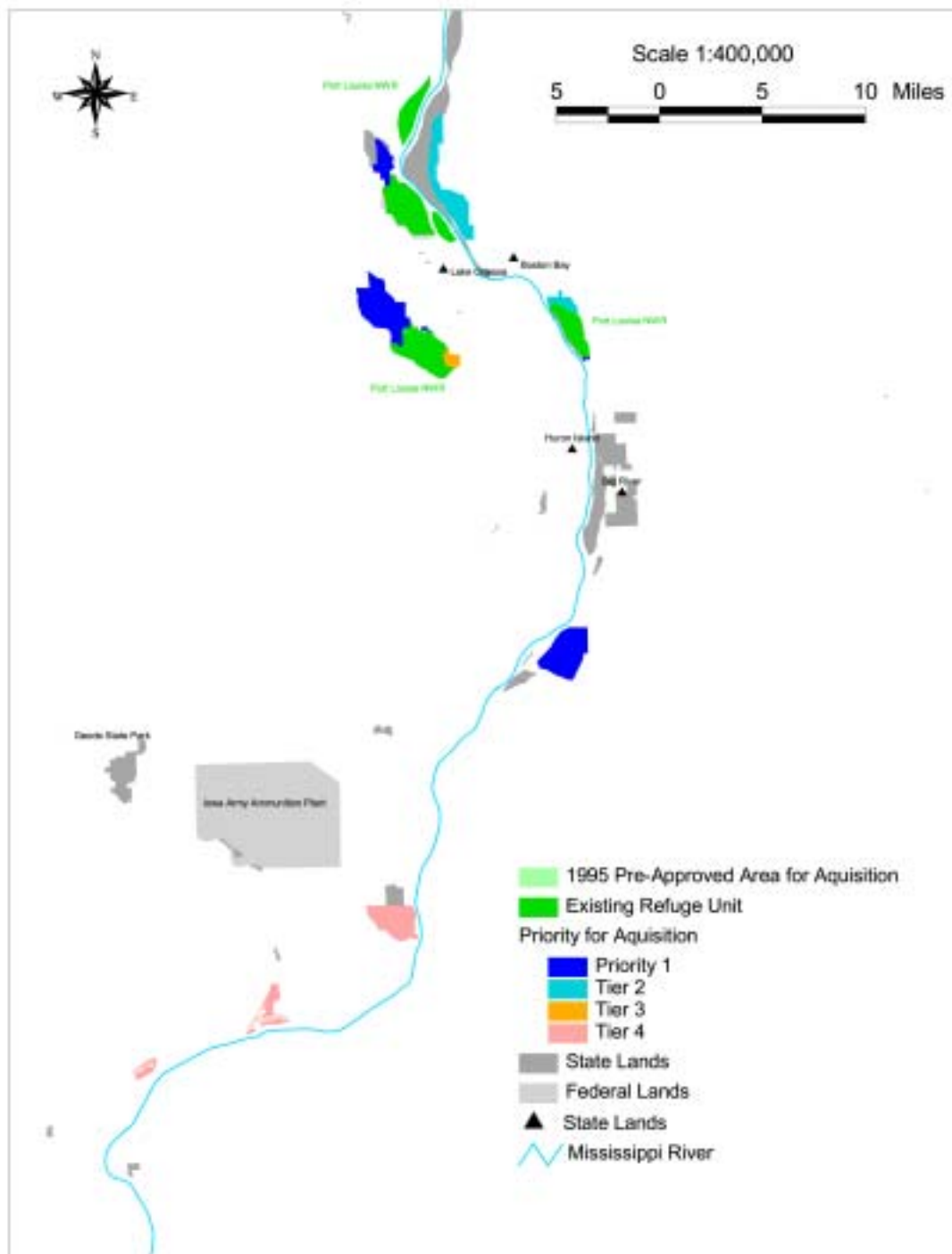
Middle Mississippi River National Wildlife Refuge

Land Acquisition Reference Map

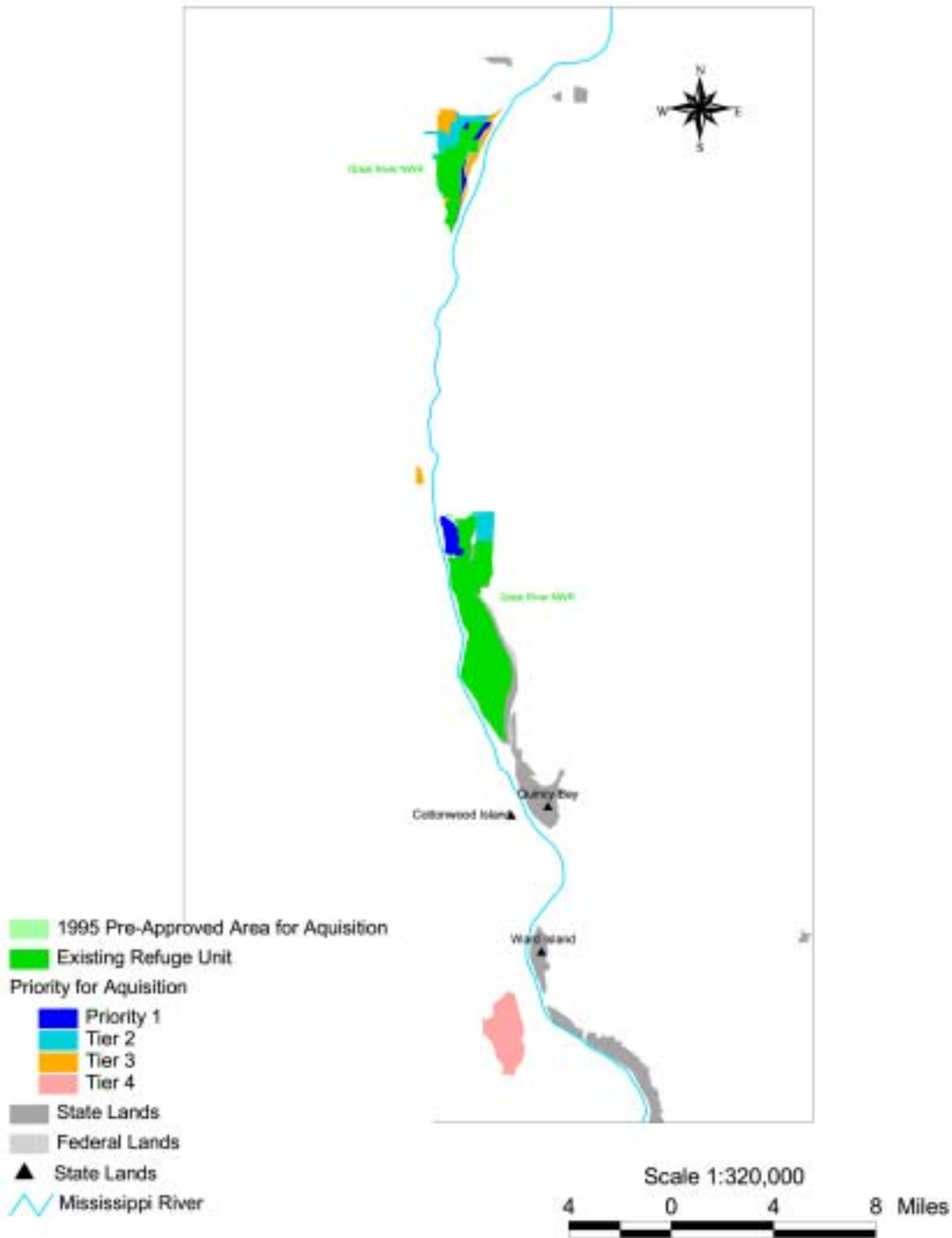
**Attachment 2: Maps Depicting Proposed Additions (Priority 1 areas), Other Areas Considered for Additions (Tiers 2,3,4), and Relationship to Other Conservation Lands**



## Area 1



## Area 2





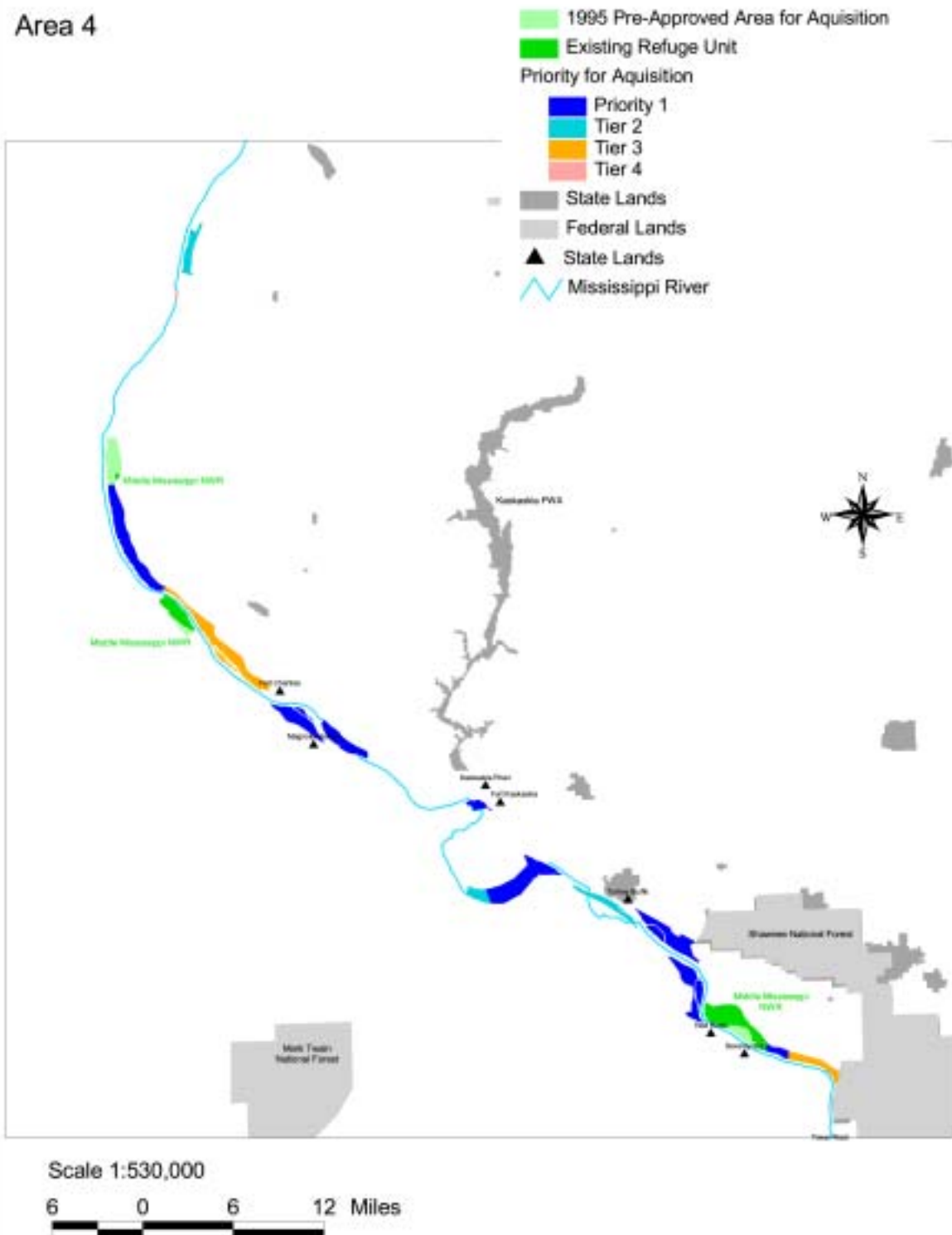
Area 3

Scale 1:470,000  
0 7 14 Miles

1995 Pre-Approved Area for Acquisition  
Existing Refuge Unit  
Priority for Acquisition  
Priority 1  
Tier 2  
Tier 3  
Tier 4  
State Lands  
Federal Lands  
State Lands  
Mississippi River



Area 4



## Area 5

